

REMARKS

Applicant requests reconsideration of the present application in view of the foregoing amendments and the discussion that follows. The status of the claims is as follows. Claims 1-70 were originally filed. Claims 1-25 are pending and Claims 71-97 have been added herein. Claims 26-70 were withdrawn from consideration and these claims were canceled previously without prejudice to Applicant's filing of divisional applications to what has been determined to be the separately patentable subject matter thereof. Claim 1 has been amended herein and, as mentioned above, Claims 71-97 have been added.

Amendment of Inventorship

Pursuant to 37 C.F.R. 1.48(b) inventorship in the present application was amended previously by deleting Richard O. Hilson and Edward P. Donlon.

The Amendment

Claim 1 was amended to recite that at least one wall extends from an area adjacent a top edge of the well "to a top portion of said housing." Support therefor is in the Specification, for example, page 14, lines 20-21.

Claims 71-89 and 93-96 were added and are based on original Claims 1-19 and 22-25 as well as the figures. Claims 90-92 were added and are supported in the Specification, for example, original Claims 20-21, page 17, line 24, and page 3, line 3. Claim 97 was added and finds support in the Specification, for example, page 10, lines 7-17.

Rejections under 35 U.S.C. §103

Claims 1-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Earley, *et al.* (WO 94/08759 A1) (Earley).

Earley does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well to the top of the housing wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As indicated on page 7, lines 10-11, and Figs. 7-8, Earley's disclosure relates only to standard ninety six well microtiter plates having a capacity of about 300 microliters. As can be seen from Fig. 8, the wells of Earley's microtiter plate do not have, nor is there any suggestion of, at least

one wall extending from an area adjacent a top edge of the well to the top of the housing wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As a matter of fact, Earley's teaching is completely devoid of any disclosure of additional walls leading from his well.

The Office Action responds to Applicant's argument with the contention that each well in a microtiter plate is adjacent at least two other wells. As such, continues the Office Action, the space on the surface of the plate between adjacent wells qualifies as an area adjacent to the well and the walls of the adjacent well are clearly sloped. Furthermore, asserts the Office Action, the same space between wells on the microtiter plate qualifies as a ledge, which extends from the top edge of the well to the wall of the adjacent well.

Applicant respectfully disagrees with the above comments in the Office Action with regard to the present claims. Claims 1 and 71 recite that the at least one wall extends from an area adjacent a top edge of the well to a top portion of the housing. Clearly, adjacent wells of the microtiter plate do not satisfy this limitation.

It has long been held that discovery of a problem is one consideration in determining the patentability of a claimed invention. *In re Atkinson*, 102 F.2d 882, 41 USPQ 308 (C.C.P.A. 1939); *In re Nomiya*, 509 F.2d 566, 184 USPQ 607 (C.C.P.A. 1969) As Applicant indicated in the Specification (page 26, lines 19-25), during reactions involving biopolymers on a support surface, it is often desired to heat the materials in contact with the surface of a support in a well. The heating of the support should be carried out in a manner that minimizes or avoids loss of liquid in the well of the device. This is particularly true where the liquid is sample, which is present in a relatively small quantity. Loss of liquid may occur by evaporation out of the device, or evaporation and condensation on the surface of the device, by wicking out of the well of the device and so forth.

As the Office Action appreciates, the wicking problem recognized by Applicant is contrary to the expectations of one skilled in the art. The Office Action indicates that one does not put liquid in wells of a microtiter plate with the expectation that the liquid will not remain in there. Rather, continues the Office Action, one expects that liquid disposed in the well will stay there. On the contrary, Applicant has discovered that, in situations where a small volume of liquid forms a thin layer above the surface

of a substrate or support, wicking of liquid from the well may occur. The structural features of the devices of the present invention avoid such wicking.

It is Applicant's teaching and invention to avoid wicking by various structural features of the claimed devices. Accordingly, the holding in *In re Rose* is not applicable since the present invention goes far beyond mere differences in size of an article of manufacture. The references do not teach or suggest the structural features set forth in the claims. Nor do the references teach the problem solved by the present invention.

Earley does not disclose or suggest a device as claimed in Claims 90-92 wherein a surface of the support further comprises an array of biopolymers.

Claims 1-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pedley (GB 2 197 720 A). Pedley does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well to the top of the housing wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. Pedley's teaching is completely devoid of any disclosure of additional walls leading from his well to the top of his housing. Pedley does not disclose or suggest a device as claimed in Claims 90-92 wherein a surface of the support further comprises an array of biopolymers.

Claims 1-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Balch (U.S. Patent No. 6,083,763). Balch does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well to the top of the housing wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As with the aforementioned references, Balch's teaching is completely devoid of any disclosure of additional walls leading from his well. As such, Balch also does not disclose or suggest a device as claimed in Claims 90-92 wherein a surface of the support further comprises an array of biopolymers.

Claims 1-19 and 22-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel (U.S. Patent No. 4,919,894). Daniel does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well to the top of the housing wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at

least one wall. Daniel does not disclose or suggest a device as claimed in Claims 90-92 wherein a surface of the support further comprises an array of biopolymers.

Claims 1-19, 22-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Matkovich, *et al.* (U.S. Patent No. 4,828,386) (Matkovich). For reasons similar to those set forth above with regard to Earley, Matkovich does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well to the top of the housing wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. Matkovich does not disclose or suggest a device as claimed in Claims 90-92 wherein a surface of the support further comprises an array of biopolymers.

Claims 1-19, 22-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Calenoff, *et al.* (U.S. Patent No. 4,844,966). Calenoff does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well to the top of a housing wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As indicated, for example, in the Abstract, Calenoff's disclosure relates to multiwell plates and the teaching of Calenoff is completely devoid of any disclosure of additional walls leading from his well to the top of his housing. Calenoff does not disclose or suggest a device as claimed in Claims 90-92 wherein a surface of the support further comprises an array of biopolymers.

Claims 1-19, 22-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Provonchee (U.S. Patent No. 4,701,754). Provonchee does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well to the top of a housing wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. For the reasons set forth above, Provonchee does not disclose or suggest the presently claimed invention. Provonchee does not disclose or suggest a device as claimed in Claims 90-92 wherein a surface of the support further comprises an array of biopolymers.

Claims 1-19 and 22-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cassin, *et al.* (U.S. Patent No. 5,910,287)(Cassin). Again, Cassin does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well to the top of a housing wherein the at least one wall is at least

partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. Cassin's teaching is completely devoid of any disclosure of additional walls leading from his well. Cassin does not disclose or suggest a device as claimed in Claims 90-92 wherein a surface of the support further comprises an array of biopolymers.

Summary

Most of the above references disclose or suggest nothing more than conventional multi-well microtiter plates. Some references disclose various nuances of the conventional microtiter plates but do not disclose or suggest the structural features of the devices of the present invention as discussed above with regard to each reference. None of the references disclose or suggest the problem solved by the present invention. Applicant submits that, in order for one to modify the deficient teachings of the reference to achieve the devices of the present invention, one would have to use Applicant's disclosure because the references do not teach anything relevant to the wicking problem addressed by Applicant and the structural features that avoid this problem. As has been held, there must be some suggestion, motivation or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and used to make the new device (*C.R. Bard, Inc. v M3 Systems, Inc.*, 157 F.3d 1340, 48 U.S.P.Q.2d 1225 (Fed. Cir. 1998), *cert. denied*, 67 U.S.L.W. 3715 (1999)).

Conclusion

Claims 1-25 and 71-97 satisfy the requirements of 35 U.S.C. §103. Allowance of the above-identified patent application, it is submitted, is in order.

Respectfully submitted,



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